Bin Wu
Johns Hopkins University
School of Medicine

« Image local gene expression, one mRNA at a time »

RNA is the fundamental information transfer system in the cell. Its synthesis, localization, translation and transport ultimately determine when and where the protein product is made. We develop single molecule imaging and spectroscopy technology to study RNA in vivo. We track endogenous mRNAs in live neurons and follow their localization in response to synaptic stimulation. Recently we established a single molecule translation assay (SINAPS) to directly measure the translation initiation, elongation speed and spatial location in live cells. We are investigating how synaptic stimulation influences RNA localization and translation in dendrites, which plays an important role in synaptic plasticity, memory and learning.